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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,886	05/18/2006	Hyo-Chung Lee	406-0008	8580
60803 7590 05/12/2008 SHERR & NOURSE, PLLC 620 HERNDON PARKWAY SUITE 200 HERNDON, VA 20170				
EXAMINER				
GREECE, JAMES R				
ART UNIT		PAPER NUMBER		
2873				
MAIL DATE		DELIVERY MODE		
05/12/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/595,886

Applicant(s)

LEE ET AL.

Examiner

JAMES R. GREECE

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 40-44 is/are allowed.
- 6) ☒ Claim(s) 24-33, 35-39 and 45-48 is/are rejected.
- 7) ☒ Claim(s) 34 and 47 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 7/27/2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Applicant cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Status of the Application

Claims 24-48 are pending in this application

If the applicant is aware of any prior art or any other co-pending application not already of record, he/she is reminded of his/her duty under 37 CFR 1.56 to disclose the same.

Drawings

At this time there are no objections to the applicant's drawings.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 24, 26-33, and 37-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Min et al (USPUB 2005/0213653).

In regard to claim 24, Min et al teach the following as claimed:

An input/output interface unit exchanging the lens driver control signal and status information of the liquid-filled lens with the image signal processor according to a certain signal transmission protocol; (for details see at least figure 3 and paragraphs 0015 and 0035) a system clock generation unit for generating a system clock; (for details see at least figure 3 and paragraphs 0015 and 0035) a high voltage generation unit for generating high voltage, which can drive the liquid-filled lens, using low voltage of a battery of a mobile information terminal; (for details see at least figure 3 and paragraphs 0015 and 0035) a voltage generation unit for providing reference voltage and bias voltage for operating the liquid-filled lens driver; (for details see at least figure 3 and paragraphs 0015 and 0035) a drive signal generation unit for generating a final drive signal for the liquid-filled lens by generating an output waveform for driving the liquid-filled lens and boosting the output waveform to a high voltage level generated by the high voltage generation unit; (for details see at least figure 3 and paragraphs 0015 and 0035) and a control unit for controlling the function units so that they can drive the liquid-filled lens (for details see at least figure 3 and paragraphs 0015 and 0035).

In regard to claims 26-33 and 37-38, Min et al teach the following as claimed:

A clock signal wire for exchanging a control clock signal that controls the exchanging of image information; and (for details see at least figure 3 and paragraphs 0015 and 0035) a data signal wire for exchanging data related to the image information and determining power status of the liquid filled lens driver (for details see at least figure 3 and paragraphs 0015 and 0035).

Wherein the determination of the power status of the liquid-filled lens driver is performed in such a way as to stop operation of the liquid-filled lens driver by disabling all reference

voltage and bias voltage of the liquid-filled lens driver and turning off the system clock generation unit when a power-off mode signal is received (See at least numeral 110).

Wherein the determination of the power status of the liquid-filled lens driver is performed in such a way as to normally operate the liquid-filled lens driver by enabling all reference voltage and bias voltage of the liquid-filled lens driver and turning on the system clock generation unit when a normal power mode signal is received (see at least numeral 110 and paragraph 0060).

A clock signal wire for exchanging a control clock signal that controls the exchanging of image information; a data signal wire for exchanging data related to the image information; and a power control signal wire for determining power status of the liquid-filled lens driver (see at least figure 3).

Wherein the determination of the power status of the liquid-filled lens driver is performed in such a way as to stop operation of the liquid-filled lens driver by disabling all reference voltage and bias voltage of the liquid-filled lens driver and turning off the system clock generation unit when a power-off mode signal is received (for details see at least figure 3 and paragraphs 0015 and 0035-0037).

Wherein the determination of the power status of the liquid-filled lens driver is performed in such a way as to normally operate the liquid-filled lens driver by enabling all reference voltage and bias voltage of the liquid-filled lens driver and turning on the system clock generation unit when a normal power mode signal is received (for details see at least figure 3 and paragraphs 0015 and 0035-0037).

Wherein the exchanging of the lens driver control signal and the status information of the liquid-filled lens by the input/output interface unit is performed in such a way as to receive an

effective data signal through a data signal wire by synchronizing with a clock signal transmitted through a clock signal wire (for details see at least figure 3 and paragraphs 0015 and 0019).

Wherein the exchanging of the lens driver control signal and the status information of the liquid-filled lens by the input/output interface unit is performed in such a way as to set a register value in the input/output interface and read/write information from/in the register (for details see at least figure 3 and paragraphs 0015 and 0019).

A reference/bias voltage provision module for providing reference and bias voltage to electronic elements of the liquid-filled lens driver; (for details see at least figure 3 and paragraph 0015) and a reference voltage generation module for generating analog voltage corresponding to a curvature value (drive voltage) of the liquid-filled lens transmitted from the image signal processor (for details see at least figure 3 and paragraph 0015).

A drive signal clock generation module for generating a drive clock in a waveform period of a signal for driving the liquid-filled lens; (for details see at least figure 3 and paragraphs 0015 and 0035) a low voltage differential signal generation module for generating two low voltage differential signals having a voltage level of a battery of the mobile information terminal based on the drive clock; (for details see at least figure 3 and paragraphs 0015 and 0035) and a high voltage differential signal generation module for generating plus and minus differential drive signals, that is, the final drive signal for the liquid-filled lens, by increasing a voltage amplitude of the low voltage differential signal to a level of the high voltage generated by the high voltage generation unit (for details see at least figure 3 and paragraphs 0015 and 0035).

In regard to claims 45-46 and 48, Min et al teach the following as claimed:

A drive signal clock generation module for generating a drive clock in a waveform period of a signal for driving the liquid-filled lens; (for details see at least figure 3 and paragraphs 0015 and 0035) a low voltage differential signal generation module for generating two low voltage differential signals having a voltage level of a battery of the mobile information terminal based on the drive clock; (for details see at least figure 3 and paragraphs 0015 and 0035) and a high voltage differential signal generation module for generating plus and minus differential drive signals, that is, the final drive signal for the liquid-filled lens, by increasing a voltage amplitude of the low voltage differential signal to a level of the high voltage generated by the high voltage generation unit (for details see at least figure 3 and paragraphs 0015 and 0035).

Wherein the drive signal clock generation module generates a plurality of clocks having various frequencies so that the low voltage differential signal generation module can selectively use an optimal differential signal period for driving the liquid-filled lens (for details see at least figure 3 and paragraphs 0015, 0035, and 0043-0045).

A voltage level converter for generating plus and minus drive signals, that is, final drive signals, by voltage level-converting voltage of the low voltage drive signal generated in the low voltage differential signal generation module into high voltage input from a converter module; (for details see at least figure 3 and paragraphs 0015 and 0035) first and second buffers for buffering the plus and minus drive signals, which are generated by the voltage level converter, with respect to the liquid-filled lens; (for details see at least figure 3 and paragraphs 0015 and 0035) and a slope adjusting resistor for keeping slopes of rising and falling edges of the plus and minus drive signals uniform regardless of signal amplitude (for details see at least figure 3 and paragraphs 0015 and 0035).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 35-36 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Min et al (USPUB 2005/0213653).

In regard to claim 35, Min et al disclose the following as claimed:

A voltage conversion arresting module for stopping voltage conversion by stopping operation of the converter module when the voltage conversion is performed such that the high voltage generated by the converter module exceeds voltage for driving the liquid-filled lens reference voltage (see at least paragraphs 0015 and 0035).

In regard to claim 35, Min et al do not explicitly disclose the following as claimed:

A converter module for Direct Current (DC) converting voltage of a battery of the mobile information terminal into high voltage for driving the liquid-filled lens; a voltage

conversion clock generation module for generating a voltage conversion clock that is used for the DC voltage conversion by the converter module;

However the examiner takes official notice to the fact that battery and DC conversion device are a well known substitute for the AC system as disclosed by the prior art and would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Min et al for the predictable result of making the device portable.

In regard to claim 39, Min et al do not explicitly disclose the following as claimed:

The input/output interface unit, the system clock generation unit, the high voltage generation unit, the reference/bias voltage generation unit, the drive signal generation unit, and the control unit are integrated in a single chip.

However the examiner takes official notice to the fact that combining individual control systems onto one chip is well known in the art of automating processes and it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Min et al to include all of its control systems on one chip for the predictable result of reducing the overall size of the device.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 25 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regard to claim 25 the applicant utilizes the claim language “unique identification” without explicitly disclosing the nature of such “unique identification”. This lack of clarity leads to a number of conflicting interpretations and thus presents the claim limitation in a vague and indefinite manner.

Claim Objections

8. Claims 34 and 47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: The prior art taken singularly or in combination fails to anticipate or fairly suggest the limitations of the independent claims, in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper.

Specifically in regard to dependent claim 34, the prior art taken either singly or in combination fails to anticipate or fairly suggest a liquid-filled lens driver combining the specific set of limitations as is explicitly disclosed by claim 34 and those claims upon which it depends.

Specifically in regard to dependent claim 47, the prior art taken either singly or in combination fails to anticipate or fairly suggest a liquid-filled lens driver combining the specific set of limitations as is explicitly disclosed by claim 47 and those claims upon which it depends.

Allowable Subject Matter

10. Claims 40-44 are allowable.
11. The following is a statement of reasons for the indication of allowable subject matter:
The prior art taken singularly or in combination fails to anticipate or fairly suggest the limitations of the independent claims, in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper.
12. Specifically in regard to independent claim 40, the prior art taken either singly or in combination fails to anticipate or fairly suggest a liquid-filled lens driver combining the specific set of limitations as is explicitly disclosed by claim 40.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES R. GREECE whose telephone number is (571)272-3711. The examiner can normally be reached on M-Th 7:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on 571-272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

James R Greece
Patent Examiner
571-272-3711

/J. R. G./
Examiner, Art Unit 2873
5/4/2008

/Joseph Martinez/
Patent Examiner, Art Unit 2873